Array Device Settings

SETDAT addition

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The Acnet RETDAT support in IRMs permits access to an array of analog channel readings by specifying a suitably large data length in the data request. The 4th word of the SSDN contains an item size, so the support software nows how many bytes to collect from each channel in building up the reply buffer. The length specified must be an even multiple of this item size. The usual item size in this context is 2, meaning that every two bytes will be collected from each successive analog channel to satisfy the number of bytes requested. It can also be useful to allow the analogous access for array settings; a setting request with a suitably large length could allow setting a succession of analog channels. This note explores this option.

The SSDN for the setting property would need to have an item size value just as for the reading property, in order to know how many bytes of the setting data to apply to each channel in the array. The length would have to be a multiple of this item size.

If an offset is used, in order to target a piece of the array, support for the byte offset value would need to be added. At this point, such support exists only for settings of alarm blocks, so that a piece of an alarm block can be set. The current setting offset support applies for the case of the offset nibble, specified in a nibble of the first word of the SSDN (mask 0x00F0), in which the offset modifies the channel number in the 3rd word of the SSDN. To add the proper offset support, it would need to be done with the setting offset nibble set to zero. If the specified offset value is a multiple of the item size from the 4th word of the SSDN, the quotient of the offset divided by the item size could modify the channel number in the 3rd word of the SSDN to get the real targeted channel. The quotient of the length divided by the item size would determine how many successive channels are to be set.

A fundamental change in the setting support logic would result from the need to set more than one channel. After everything has been checked for being valid, a check is made of the source IP address with the IP security table to be sure that the source node of the setting message is permitted to make settings in the local node. If all is ok, then the setting is performed, which is currently a single setting, made by invoking the routine called SETLOCAL.